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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/287,570	04/06/1999	AKIHISA USHIROKAWA	Q53866	6456

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EXAMINER	
ABELSON, RONALD B	
ART UNIT	PAPER NUMBER
2666	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/287,570	Applicant(s) USHIROKAWA ET AL.	
	Examiner Ronald Abelson	Art Unit 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *168-193* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *169, 171, 172, 174 – 182, 184, and 186-193* is/are rejected.

7)☒ Claim(s) *170,173,183 and 185* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2005 and 06 April 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12 October 2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/12/2005 has been entered.

Drawings

2. Figures 8 - 10 and 11 A-E should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 170, 173, 183, and 185 are objected to because of the following informalities: The applicant uses the term "standard transmission mode" in the claims, but uses the term "normal transmission mode" in the specification (see figs. 3-5, 10, and 13). Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a),

the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 168, 171, 174, 177, 186, and 189 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marchetto (US 5,513,215) in view of Hayashi (6,069,884).

Regarding claims 168, 171, 174, 177, 186, and 189, Marchetto teaches providing a vacant period (fig. 8 section 174) in which no communication data is present, in a data transmission (fig. 8 frame 170) from a base station (fig. 1 box 32a) to a mobile (fig. 1 box 36, col. 10 lines 17-19).

Marchetto teaches inserting a first pilot signal, such that a beginning of the first pilot signal is contiguous with the end of the data transmission (fig. 8 box P(-2L)). Note, box P(-2L)

is contiguous with the end of data being transmitted just as box P(M-2L) is contiguous with the end of data box 172.

Marchetto teaches inserting a second pilot, such that an end of the second pilot signal is contiguous with a beginning of a data transmission (fig. 8 box P(2L)).

Marchetto is silent on a vacant period after the end of the first pilot signal and prior to the beginning of the second pilot signal.

Hayashi teaches a vacant period after the end of the first pilot signal and prior to the beginning of the second pilot signal (fig. 6, col. 13 line 64 - col. 14 line 4).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of Marchetto by transmitting null data between the pilot signals. This modification can be performed according to the teachings of Hayashi. This would reduce inter symbol interference between the pilot signals.

7. Claims 169, 172, 175, 178, 180 - 182, 184, 187, 190, 192, and 193 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marchetto (US 5,513,215) in view of Hayashi (6,069,884), and further in view of applicant's admitted prior art 'AAPA'.

Regarding claims 169, 172, 175, 178, 180 - 182, 184, 187, 190, 192, and 193, Marchetto teaches providing a vacant period (fig. 8 section 174) in which no communication data is present, in a data transmission (fig. 8 frame 170) from a base station (fig. 1 box 32a) to a mobile (fig. 1 box 36, col. 10 lines 17-19).

Marchetto teaches inserting a first pilot signal, such that a beginning of the first pilot signal is contiguous with the end of the data transmission (fig. 8 box P(-2L)). Note, box P(-2L) is contiguous with the end of data being transmitted just as box P(M-2L) is contiguous with the end of data box 172.

Marchetto teaches inserting a second pilot, such that an end of the second pilot signal is contiguous with a beginning of a data transmission (fig. 8 box P(2L)).

Marchetto is silent on a vacant period after the end of the first pilot signal and prior to the beginning of the second pilot signal.

Hayashi teaches a vacant period after the end of the first pilot signal and prior to the beginning of the second pilot signal (fig. 6, col. 13 line 64 - col. 14 line 4).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of Marchetto by

transmitting null data between the pilot signals. This modification can be performed according to the teachings of Hayashi. This would reduce inter symbol interference between the pilot signals.

Although the combination teaches extracting at least one of the first and second pilot signals from the data transmission and measuring a reception quality of the data transmission on the basis of the at least one extracted pilot symbol (Marchetto: CIR, col. 9 lines 16-21), the combination does not explicitly teach the step of extracting, measuring, generating a transmission power control signal, which controls transmission power of a signal from the base station to the mobile station, on the basis of the measured reception quality, and transmitting the transmission power control signal from the mobile station to the base station.

AAPA teaches extracting at least one of the first and second pilot signals from the data transmission (pilot signal transmitted from base station received, pg. 5 lines 11-19), measuring a reception quality of the data transmission on the basis of the at least one extracted pilot symbol (measuring the quality, pg. 5 lines 11-19), generating a transmission power control signal, which controls transmission power of a signal

from the base station to the mobile station, on the basis of the measured reception quality (measured quality is compared with the target value, pg. 5 lines 11-19), and transmitting the transmission power control signal from the mobile station to the base station (report comparison result to base station, pg. 5 lines 11-19).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination of Marchetto and Hayashi by installing within the mobile a device to measure the quality of the pilot signal received and to transmit the quality measurement to the base station. This can be accomplished according to the teachings of AAPA. This would improve the system by having the base station control its power transmission level based on feedback from the mobile.

8. Claims 176, 179, 188, and 191 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marchetto (US 5,513,215) in view of Hayashi (6,069,884), and further in view of Heida (US 5,592,483).

Regarding claim 176, 179, 188, and 191, Marchetto teaches providing a vacant period (fig. 8 section 174) in which no

communication data is present, in a data transmission (fig. 8 frame 170) from a base station (fig. 1 box 32a) to a mobile (fig. 1 box 36, col. 10 lines 17-19).

Marchetto teaches inserting a first pilot signal, such that a beginning of the first pilot signal is contiguous with the end of the data transmission (fig. 8 box P(-2L)). Note, box P(-2L) is contiguous with the end of data being transmitted just as box P(M-2L) is contiguous with the end of data box 172.

Marchetto teaches inserting a second pilot, such that an end of the second pilot signal is contiguous with a beginning of a data transmission (fig. 8 box P(2L)).

Marchetto is silent on a vacant period after the end of the first pilot signal and prior to the beginning of the second pilot signal.

Hayashi teaches a vacant period after the end of the first pilot signal and prior to the beginning of the second pilot signal (fig. 6, col. 13 line 64 - col. 14 line 4).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of Marchetto by transmitting null data between the pilot signals. This modification can be performed according to the teachings of

Hayashi. This would reduce inter symbol interference between the pilot signals.

The combination is silent on a transmission and reception circuit which receives a notification from a mobile station to enter a transmission mode.

Hieda teaches a transmission and reception circuit which receives a notification to enter a transmission mode (fig. 16, packets 21, 22, CTS packet, data packet, col. 2 lines 52-56).

Therefore it would have been obvious to one of ordinary skill in the art, to modify the system of the combination of Marchetto and Hayashi by having the base station transmit a Ready-to-Send 'RTS' packet and waiting for the reception of a CTS packet from the mobile before sending the data. This modification can be performed in software. This modification would benefit the system by ensuring that the mobile is ready to receive data before the base station transmits.

Response to Arguments

9. Applicant's arguments with respect to claims 176, 179, 188, and 191 have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's arguments filed 10/12/2005 with respect to claims 168, 169, 171, 172, 174, 175, 177, 178, 180-182, 184, 186, 187, 189, 190, 192, and 193, have been fully considered but they are not persuasive.

Regarding claims 168, 171, 174, 177, 186, and 189, the applicant contends that Marchetto does not teach creating a vacant period (pg. 22 4th paragraph). The examiner maintains that the frame is "vacant" prior to the insertion of the data and pilot symbols. Therefore a "vacant period" in the frame exists prior to the insertion of the data and pilot symbols. Furthermore, the "creation" of the vacant period is not claimed. The examiner has combined the teachings to Marchetto with Hayashi to clarify that a vacant period remains after the end of the first pilot signal and prior to the beginning of the second pilot signal.

The applicant discusses a "non-negligible gap" between the end of a period of data symbols 172 and the beginning of a

period of pilot symbols (applicant: pg. 22 last paragraph). However, the applicant does not define "non-negligible gap". The applicant is reminded that fig. 8 is an illustration and the text does not discuss any gaps between the data and pilot symbols.

Regarding claims 169, 172, 175, 178, 180-182, 184, 187, 190, 192, and 193, the applicant states that Marchetto teaches the transmitters are "simulcasting" transmissions to a number of receivers at various locations simultaneously. However, the reference clearly states the transmitters are simulcasting" transmissions to a single receiver simultaneously (abstract, fig. 1A, col. 6 lines 21-40). The examiner maintains one of ordinary skill in the art would be motivated to modify the system of Marchetto by making a transmitter power adjustment, as taught by AAPA. For instance, if the reception quality at the receiver from one transmitter is extremely low, the receiver might inform the transmitter to temporarily stop transmitting.

Allowable Subject Matter

11. Claims 170, 173, 183, and 185 are objected, but would be allowable if rewritten to overcome the objection to as stated above. The term "standard transmission mode" is used in the

claims, but uses the term "normal transmission mode" in the specification.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Abelson whose telephone number is (571) 272-3165. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ronald Abelson
Examiner
Art Unit 2666

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